

Amendments to the Specification

Please replace paragraph [0001] with the following amended paragraph:

[0001] This invention relates generally to a cage for shielding components from electromagnetic interference, and more particularly to a shielding cage assembly for arranging a plurality of transceiver modules therein. A copending application filed June 6, 2003 and titled "2X4 SHIELDING CAGE ASSEMBLY ADAPTED FOR MULTIPLE TRANSCEIVER MODULES" and having the same applicant and the same assignee ~~with as~~ the instant application, and a contemporaneously filed application having the same title, the same applicant and the same assignee ~~with as~~ the instant invention application, are both referred hereto.

Please replace paragraph [0006] with the following amended paragraph:

[0006] A transceiver module assembly includes a printed circuit board, a plurality of transceiver modules, a plurality of electrical connectors adapted to connect between the plurality of transceiver modules and the printed circuit board, and a shielding cage assembly which is mounted to the printed circuit board for receiving the transceiver modules and the electrical connectors therein. The shielding cage assembly includes at least one shielding cage, a spacer, and a hanger. The at least one shielding cage and the spacer are mechanically retained in the hanger, and the spacer mechanically engages with the shielding cage ~~for spacing a level to the shielding cage~~ for good air ventilation therethrough.

Please replace paragraph [0008] with the following amended paragraph:

[0008] FIG. 1 is an isometric ~~assembled~~-view of a shielding cage an assembly in accordance with the present invention, ~~mounted to a printed circuit board,~~

together with a panel prior to engagement therewith, the assembly comprising a shielding cage assembly mounted to a printed circuit board;

Please replace paragraph [0009] with the following amended paragraph:

[0009] FIG. 2 is an exploded, inverted a-bottom aspect view of the shielding cage assembly of FIG. 1, but showing only one of electrical connectors thereof;

Please replace paragraph [0010] with the following amended paragraph:

[0010] FIG. 3 is an exploded, isometric a-perspective view of a lower shielding cage of the shielding cage assembly of FIG. 1, showing wherein a lower dividing wall separated from the lower shielding cage is removed;

Please replace paragraph [0011] with the following amended paragraph:

[0011] FIG. 4 is an isometric a-perspective view of a spacer of the shielding cage assembly of FIG. 1;

Please replace paragraph [0012] with the following amended paragraph:

[0012] FIG. 5 is an exploded a-perspective view of the shielding cage assembly of FIG. 1, wherein but showing only one of the electrical connectors thereof, and not showing a hanger thereof is removed; and

Please replace paragraph [0013] with the following amended paragraph:

[0013] FIG. 6 is an isometric a-perspective view of a shielding cage assembly according to the prior art.

Please replace paragraph [0015] with the following amended paragraph:

[0015] Referring also to FIG. 2, the hanger 1 is formed from a single sheet of metal and is pressed into a rectangular receptacle box, which includes a top wall 11, two side walls 12 extending downwardly therefrom, and a rear wall 13 extending

between the two side walls 12. An opening (not labeled) is formed by the top and side walls 11, ~~12~~, 12, which opening has a rearward boundary at the rear wall 13. A plurality of mounting pins 124 with needle-eyes therethrough respectively extends downwardly from the side and rear walls 12, 13. A plurality of slits 112 is defined through the top wall 11, arranged in parallel lines in a forward to rearward direction. A pair of inward tabs 121 extends inwardly from each side wall 12 to engage with the spacer 3, which is received in the hanger 1, to help support a weight of the upper and lower shielding cages 21, 22 mounted thereto. A plurality of through holes 110 is defined through all the walls 11, 12, 13 of the hanger 1, for dissipation of heat generated in transceiver modules received in the shielding cage assembly 10.

Please replace paragraph [0016] with the following amended paragraph:

[0016] Referring to FIGS. 1 to 3, the lower shielding cage 22 includes a conductive first portion 221 and a conductive second portion 222. The first portion 221 covers the second portion 222. The side walls of the first and second portions 221, 222 are interlocking. A pair of retaining tabs 225a formed in each side of the second portion 222 is received in a pair of receiving slots 225b defined in each side of the first portion 221, for hand soldering together side walls of the first and second portions on both sides. A plurality of notches 215 is defined through the second portion 222 and the first portion 221, the notches 215 being arranged in parallel lines in a forward to rearward direction. A plurality of ground tabs 223 is formed near an opening 220 of the lower shielding cage 22, for making a grounding contact with sides of [[an]] a corresponding aperture 501 of a panel 5 of a system assembly (not shown). A plurality of releasing tabs 224 extends inwardly at an angle from the second portion 222 into the opening 220. Each releasing tab 224 defines a triangular shaped opening (not labeled)

therethrough for securing a transceiver module therein. The releasing tab 224 can be pushed upwardly to remove the transceiver module from the shielding cage assembly 10.

Please replace paragraph [0019] with the following amended paragraph:

[0019] Referring to FIG. 4, the spacer 3 is die-cast and is made of a lightweight material, such as aluminum alloy, zinc alloy, or plastic coated with a conductive material. This kind of spacer 3 has good electrical and thermal conductivities for EMI continuity and heat dissipation. The spacer 3 includes a rectangular base 31, and has a pair of bulges 32 extending from each of two opposite sides of the base 31, wherein each bulge 32 defines a recess 33 at a bottom of the base 31. A plurality of extending posts (not labeled), each defining a press-fit hole 34 therethrough, is formed on the base 31. The extending posts are arranged in lines, for the press-fit holes 34 to receive receiving the mounting pins 234, 251 of the upper and lower dividing walls 23, 25 therein. A plurality of venting holes 35 is defined through the base 31. This structure of the spacer 3 allows air to flow freely in all directions around the spacer 3. A front edge (not labeled) of the spacer 3 provides a stop feature when the shielding cage assembly 10 is inserted in the apertures 501 of the panel 5 of the system assembly.

Please replace paragraph [0020] with the following amended paragraph:

[0020] Referring to FIGS. 2 and 5, a two-port electrical connector 6 is positioned to a rear of each pair of stacked channels of the shielding cage assembly 10. Each electrical connector 6 includes a front interface 61, a top surface 62 and a bottom surface 63. The front interface 61 has two signal ports 615, 617, each with a plurality of signal contacts 635, 637 therein for electrical connection with two transceiver modules respectively received in the lower and upper shielding cages 22, 21. Signals transmitted from the two transceiver modules are

respectively delivered to a printed circuit board 4 (shown in FIG. 1) through the plurality of signal contacts 635, 637 of the signal ports 615 and 617, wherein the plurality of signal contacts 635, 637 extends from the bottom surface 63 of the electrical connector 6. A plurality of arch pins 613 protrudes from the front interface 61 and extends out from the bottom surface 63 as ground contacts 633 grounding with the printed circuit board 4. The arch pins 613 are for contacting with the spacer 3. A plurality of positioning pins 631 extends from the bottom surface 63, for positioning the electrical connector 6 on the printed circuit board 4. A plurality of inward pins 625 extends upwardly from the top surface 62. The inward pins 625 are made of elastic material.

Please replace paragraph [0021] with the following amended paragraph:

[0021] In assembly, the retaining tabs 231 or mounting pins 234, 251, 254 of the dividing walls 23, 25 are respectively inserted into the first or second portions 211, 212, 221, 222 of the upper and lower shielding cages 21, 22, and the corresponding second or first portions 212, 211, 222, 221 of the shielding cages 21, 22 are assembled thereto to create completely assembled upper and lower shielding cages 21, 22. The second portion 222 of the lower shielding cage 22 is oriented upwardly, and the spacer 3 is mounted thereonto, the bulges 32 of the spacer 3 being positioned away from the second portion 222, and the mounting pins 251 of the lower dividing walls 25 being inserted into the press-fit holes 34 of the spacer 3. The upper shielding cage 21 fits onto ~~to~~ the spacer 3, herein, with the mounting pins 234 of the upper dividing wall 23 ~~gees~~ being inserted into the press-fit holes 34 of the spacer 3. The protrusions 237, 257 of the dividing walls 23, 25 come in complementary pairs. Thus, the upper shielding cage 21 and lower shielding cage 22 are stacked belly-to-belly, and the spacer 3 is sandwiched therebetween for providing good air ventilation. The hanger 1 encloses the upper

and lower shielding cages 21, 22, with the retaining tabs 231 of the upper shielding cage 21 passing through corresponding slits 112 and hooking onto the hanger 1 for mechanical support and electrical grounding. Each channel formed inside the upper and lower shielding cages 21, 22 is used to receive a transceiver module. The electrical connectors 6 are received inside the metal hanger 1 between the dividing walls 23, 25 and side walls 12 to a rear of the channels. The inward pins 625 of the electrical connectors 6 are deformed inwardly and pass through the corresponding through holes 110 of the hanger 1. The bottom surface 63 of each electrical connector 6 is exposed from the hanger 1. The inward tabs 121 in the side walls 12 of the hanger 1 are inserted into the recesses 33 of the spacer 3, thereby locking the spacer 3 in the hanger 1. The back tabs 236, 256 of the upper and lower dividing walls 23, 25 protrude out of the rear wall 13 of the hanger 1 and are bent at an angle for mechanical retention to and electrical continuity with the hanger 1 for EMI shielding. The mounting pins 124 of the hanger 1 and the mounting pins 254 of the lower dividing walls 25 are pressed into mounting holes (not shown) of the printed circuit board 4 for retaining and grounding, where they can be soldered or otherwise fixed therein. The positioning pins 631 of the electrical connectors 6 are inserted into positioning holes (not shown) of the printed circuit board 4, and the signal contacts 635, 637 and the ground contacts 633 are respectively received into corresponding holes (not shown) of the printed circuit board 4 for transmitting signals or electrical grounding. An assembly of the shielding cage assembly 10, the electrical connectors 6, and the printed circuit board 4 is thus completed.